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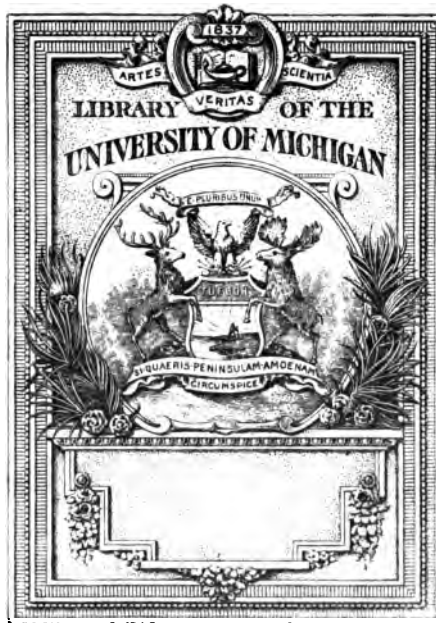
A FIELD FOR IMMIGRATION

Issued on Direction of the Hon. S. J. MOORE, M.L.A., Premier of [illegible]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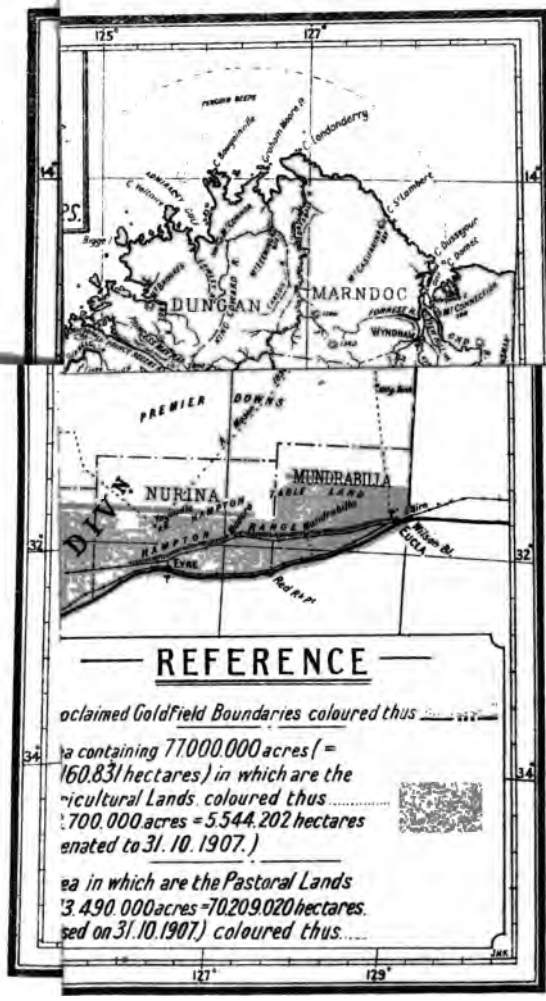

H. J. Pether, Government Lithographer, Perth, W. A.

1908.

Western Australia. Premier's Dept.

WESTERN AUSTRALIA:

A FIELD FOR IMMIGRATION.

BEING A GLANCE AT THE MAIN RESOURCES OF THE GREAT STATE OF WESTERN AUSTRALIA, WITH SOME OF THE INDUCEMENTS IT OFFERS TO SETTLERS.

Issued by order of the Hon. N. J. Moore, M.L.A., the Premier of Western Australia.

PERTH:

BY AUTHORITY: FRED. WM. SIMPSON, GOVERNMENT PRINTER

1908.

Perth, from King's Park.

INTRODUCTION.

This publication is prepared for the purpose of setting forth as succinctly as possible, and without any undue attempt at elaboration, a great opening which exists for meeting and reconciling the conflicting and urgent requirements of two widely separated continents. Australia, with its vast area, cries out for a largely increased population. Europe, with its teeming millions, requires, just as urgently, an outlet for its surplus people, and especially an outlet which presents opportunities, free from the dragging load of a grinding competition, for a substantial advance in the worldly position of those who make the necessary effort to escape from conditions in which such advancement is, by reason of conditions beyond their control, next to impossible. These opportunities Australia offers in abundance, especially in the direction of the primary industries, such as the Agricultural, Pastoral, Horticultural, Timber, and Mining; and Western Australia, by reason of its being at the same time by far the largest and the youngest in development of all the States of the Commonwealth, and also on account of its being several days nearer to the older countries, and of its magnificent climate, may truly be said to offer them with a lavish hand.

To all those who are competent, by training and education, by the proper spirit of energy and enterprise to enable them to conform to new conditions in a new country, and by the possession of a moderate capital to enable them to make a fair start, the information given herein is presented without any undue colouring in the hope that its perusal will result in mutual benefit. The thriftless, the helpless, and the indolent will gain nothing by coming to these shores, but the man with energy and determination to succeed will find the path to the goal within his reach, and the pleasure of his labours enhanced by the greater freedom of life and the geniality of the climate.

Albany.

THE STATE OF WESTERN AUSTRALIA.

When considering the position and possibilities of this State, its vast extent (which may be appreciated by a reference to the map attached, the relative areas of England and France being shown on the same scale) must be taken into consideration. Its area is no less than 975,920 square miles—624,588,800 acres—and it extends from the 14th to the 34th parallels of South Latitude. The wide range of its resources is shown by the fact that it embraces all varieties of climate, from lower temperate to tropical, or, say all the climatic variations to be met with on the Northern shores of Africa and the continent of Europe, save the frigidity of the extreme North. The more Northern parts of this State, principally occupied at present by the great stock raising estates, are visited by great heat and tropical rains in the summer, but the winter is genial and enjoyable. The South-Western portion of the State, where the bulk of the settlement occurs, is distinguished by a copious winter and spring rainfall, remarkable for its regularity, increasing Southward and diminishing back from the coast, and in summer several months of dry weather, bright sunny skies, but very little extreme heat, the warmth of the sun being tempered by the constant breezes from the Indian and Southern oceans.

Though settled first in 1829, the gold discoveries of the Eastern States had the effect of taking the bulk of the earlier emigrants past its doors, and for nearly seventy years the State was occupied by no more people than would make up the population of a fair-sized town in Great Britain. But with the great gold discoveries in this State in the early nineties came a change, and the population has since grown from 40,000 to 265,000. Its extent is so vast, and its natural resources so great, that it affords opportunities for a colossal multiplication of these numbers.

RURAL INDUSTRIES.

AGRICULTURE.

With the advent of the increased population agriculture [illegible] real advance. The food needs of the new- [illegible] had [illegible] to be supplied from the Eastern States, [illegible] was to gradually draw attention to the re- [illegible] capabilities of the State itself, and the result [illegible] remarkable development in land settlement [illegible] industries arising therefrom—Meat, [illegible], Fruit, etc., etc. The possibilities before the [illegible] in this respect were for a long time scarcely, if at all, [illegible] how they are appreciated at anything like [illegible] be recognised that so vast are [illegible] and settlement must proceed at a rapid [illegible] many years before they can be regarded [illegible] taken advantage of.

[illegible] taken as a whole, the soil in this State is not [illegible] as, and is less uniform than, that of the [illegible] Eastern States, land here can be obtained on such [illegible] that the deficiency would have many compensa- [illegible] but any disparity in this respect is altogether re- [illegible] by the remarkable regularity of the seasons. This [illegible] the marking off of the State into distinct belts [illegible] the average yearly rainfall, which can be relied upon with a great degree of certainty. Thus, the farmer knows, according to his location, what class of agriculture to devote himself to with the probability of success, and the would-be selector who has made up his mind to a certain course knows where to look for the necessary conditions, as regards dryness or moisture. The droughts which have played such havoc in the Eastern States are unknown here, and from our geographical position they must always re- main unknown.

The results of the harvests for the last twenty years show that in wheat production Western Australia stands [illegible] ahead of the other States of the Commonwealth, and [illegible] vest now being garnered is certain to again give [illegible] e of place in the average per acre. Other cereals

Farm Lands, York.

and crops are equally prolific. For the first time in its history Western Australia, hitherto a very large importer of food-stuffs, has become an exporter, and has sent to the Eastern States large quantities of chaff and other produce to make up for short harvests on that side of the continent. Apart from the initial cost of clearing, which, of course, varies according to locality and the nature of the forest growths, the cost of cultivation is comparatively low, and the capable farmer may, in normal conditions, look with confidence to a good payable average result without fear that the most promising crops will be ruined by devastating droughts as in the East. The effect of the regularity of the seasons is shown by the following record of the average wheat yields from the principal States, from which it will be seen that violent fluctuations due to the variability of the seasons have not affected this State:—

Year.	New South Wales. Bushel.	Victoria. Bushel.	South Australia. Bushel.	Western Australia Bushel.
1884	11·5	14·1	7·5	13·0
1885	15·5	9·5	*	13·3
1886	10·3	8·9	*	11·5
1887	17·4	11·5	*	12·0
1888	12·7	10·8	*	9·8
1889	4·7	7·1	*	10·1
1890	15·6	9·8	8·7	14·2
1891	10·9	11·1	6·0	13·9
1892	11·1	10·3	4·2	9·9
1893	15·5	11·0	5·3	11·6
1894	10·9	10·4	8·7	12·2
1895	10·9	8·3	5·5	8·0
1896	8·7	4·0	3·5	8·0
1897	10·2	4·5	1·8	7·4
1898	10·6	6·4	2·2	10·6
1899	7·0	9·1	4·8	11·6
1900	9·5	7·0	4·4	11·4
1901	10·6	8·8	6·5	10·4
1902	10·7	7·0	4·6	10·1
1903	1·2	1 3	2·8	10·7
1904	17·5	14·5	7·7	13·6
1905	9·3	9·2	*	11·1
1906	10·69	11·31	11·46	11·83
1907	11·69	11·13	10·19	11·02
Average for whole term	11·02	9·04	5·88	11·13

* Not collected.

[The apparent drop in the Western Australian yields for the period 1895-6-7 is not due to a reduced average yield, but owing to the suddenly increased demand at high prices for horse feed, on the outbreak of the goldfields, all the best crops were probably cut for that purpose.]

But apart from the good payable character of the average yield, and the regularity thereof, the climatic influences peculiar to this State are responsible for another great point in its favour—the quality of the grain. In this respect Western Australia can compete against the whole wheat-growing world, and at Paris Exhibition she took first place against all competitors.

Oats, Barley, and other grain crops have also been grown largely with good results, and there are considerable areas of land eminently suitable for the production of root crops, which have not up to the present received a full share of attention.

To show the progress which has been made in agriculture in a few years, it may be mentioned that the area under crop has increased from 133,183 acres in 1898 to 460,825 acres in 1907; the area ringbarked or partially cleared from 552,825 to 2,145,437 acres, and the total area under crop, artificial grasses, fallow or partially cleared from 823,411 acres to 3,064,035 acres in the same period. These figures speak of progress arising from an abounding confidence born only of practical experience in good results.

FRUIT GROWING.

The industries which come under this head have before them a field of almost illimitable expansion. With such a great range of territory, Western Australia can produce practically the fruits of the world—from those of the tropics to the products of the coldest clime. The vine and the fig flourish everywhere, and the luxuriance of their growth in even the most uninviting sand patches is the *wonder of all new-comers*. The other fruits have their

F. Cleveland's Farm and Orchard.

favoured habitats, and such large tracts are available that it may be safely said that Western Australia could supply the fruit markets of the world.

In the matter of supplying the English, Continental, South African, and Asiatic markets, a vast field for the expansion of this industry presents itself, quite apart from the excellent market provided by our own goldfields. The experienced orchardist from Great Britain, the vigneron from the South of France or banks of the Rhine, the orange grower from Seville or the sunny slopes of Italy's hills, the raisin drier from Greece, and the fruit culturist generally, may here obtain at a nominal rate land which "needs only to be tickled to blossom forth in profusion." The export trade is as yet in its infancy, but it has so far been tried sufficiently to prove that it has a great future before it; and the fact that Western Australia is several days nearer than the other Australian States to the markets of the world is an advantage the importance of which cannot be overlooked, especially in the case of the softer fruits.

For the Orange, and other fruits of the Citrus family, Western Australia has already established a reputation, the fruit grown in many of the districts being unexcelled for size and quality. Citrus fruits flourish from Bunbury, on the South of the Capital, away beyond Geraldton on the North. Rich crops of perfect fruit, with a good market within the State itself, have rewarded the enterprising growers; but only the fringe of this industry has been touched. There is room for manifold expansion, and the building up of a great export trade to India and other places is certain to take place in the early future.

No high prices or exorbitant rents for land face the would-be grower; and settlers who have a little capital or ability to earn sufficient to enable them to tide over the first two or three years, can look forward with confidence to good results from this industry.

The apple is another fruit for which there is a great future in the matter of export, but, though grown with

great success throughout the Southern Districts, the production has not yet overtaken the requirements of the local markets. Hence, we may look forward to a very large development in the growth of this fruit; and there are many thousands of acres away from Perth, in the direction of Bridgetown and Albany, which are regarded by experts as an ideal habitat for this and other fruits (such as cherries, pears, raspberries, etc.) of the cooler regions. Much of the country most suitable for this class is very heavily timbered and costly to clear, but the eventual results of intelligent culture will prove an ample reward. As an example of what may be done in this direction, it may be remarked that a settler at Mount Barker, near Albany, has a young orchard of about 100 acres of apples, nearly all planted within the last 13 years, from which last year (1906) he took 12,000 cases of fruit realising 10s. per case. The peach, the apricot, the plum, and other soft fruits also thrive luxuriantly in different localities, in all of which there are large areas of Crown land awaiting selection.

The slopes of the Ranges running North and South at a short distance from the Western coast afford almost illimitable opportunities for the cultivation of the grape with the best possible results. Raisin-drying, to a small extent, and wine-making, on a somewhat larger scale, have already been tried, and the results in both cases have been satisfactory. For raisin-growing there is a very great future in this State, and those interested should not fail to see the splendid dried-fruit trophies in the Exhibition, where also apple and wine trophies are erected.

THE PASTORAL INDUSTRY.

The North-West and Northern part of the State, save the Mining propositions and the great pearling industry at Broome, is at present almost entirely devoted to the production of meat and wool. These pursuits are in a most flourishing condition, and the extent of country held for the purpose has increased in six years from 86,429,037

Orange Grove.

acres to 159,130,182 acres. So vast, however, is the country available that much of it is still a *terra incognita* in the hands of the aboriginals. Away from the rivers means of obtaining water are of course absolutely essential; and in several cases recently bores have succeeded in tapping large subterranean supplies.

In the matter of stock-raising, the immunity this State enjoys from droughts has stood her in good stead, as the growth of our flocks and herds has gone on steadily even when those of the Eastern States were decimated by the great droughts of 1902 and 1903. A few figures will illustrate this point:—

Cattle.

	New South Wales.	Victoria.	South Australia.	Western Australia
1894 ..	2,465,411	1,833,900	423,062	187,281
1903 ..	1,880,578	1,522,265	244,610	497,617
1906 ..	2,549,758	1,804,323	679,415	690,011

Sheep.

1894 ..	56,977,000	13,184,000	7,298,000	2,220,000
1903 ..	28,656,000	8,774,000	5,299,000	2,600,333
1906 ..	44,132,421	12,937,440	6,661,217	3,340,745

The figures convey a great lesson; and an idea of the enormous wealth lost in the drought-affected States through the drought may be gathered by estimating what the result would have been had the rate of increase disclosed in the normal years from 1903 to 1906, and as shown in unbroken progression in the case of Western Australia, continued uninterrupted since 1894. The value of the wool exported from this State increased from £295,646 in 1897 to £603,089 in 1906. Horse-breeding is also successfully carried on, and the raising of Indian Remounts—all procured from Australia—should afford means of expansion in this direction.

SOIL CHARACTERISTICS.

Western Australia in its primeval state was covered with a variety of vegetation, from a small scrub to the noble jarrah and the giant karri. The character of the timber is an excellent guide to the nature of the land. For instance, the slender "jam" (so called from the aroma of raspberry jam it gives out when first cut), when found in conjunction with the "wattle," indicates a soil adapted to the cultivation of citrus fruits; the morrell and salmon gum—a loamy soil—good wheat country; gimlet wood—a red clayey subsoil—good holding ground for tanks and dams; and the karri, jarrah, red gum, tuart, blackbutt, and wandoo all furnish indications as to the character of the soil, and its adaptability to varied uses.

AGRICULTURAL RAILWAYS.

For the last ten years or so the bulk of the land settlement has taken place in the district along the Great Southern Railway, with a goodly proportion along the South-Western and other railways. As, however, the land close to the railways was selected, and the intending settler was gradually thrown back from the line, increased railway facilities became necessary. The result was the construction of several agricultural railways as feeders to the main lines; and as settlement proceeds this policy of bringing the producer within the reach of railway conditions will be gradually extended.

CONDITIONS OF LAND SETTLEMENT.

Though land settlement has progressed with leaps and bounds for the last ten years, the area available is so vast that, in its determination to induce settlement, the Government continues to dispose of the land on most liberal terms. The landless settler is first provided with a Free Homestead Farm of 160 acres; the land is given absolutely for nothing, and the only costs incurred by the selector are fees for survey and application (£2 10s. de-

Shropshire Sheep.

posit and £1 10s. in twelve months) and for Crown Grant (£1 10s. at the end of seven years). To ensure that bona-fide applicants shall get these farms, certain improvement conditions are enacted, but these are not onerous to the genuine settler, since they are designed with such care and such regard to the settler's needs and requirements, that they are absolutely and entirely to his benefit. The selector of a free homestead farm gets an occupation certificate for seven years, and he may take any area from 10 to 160 acres. During the first five years he must reside on the farm, or on rural land within 20 miles, for six months out of each year, though residence by a relative is accepted in certain cases. During the first two years he must make improvements to the value of 4s. per acre, during the next three years 6s. per acre, and during the last two years 4s. per acre. Half the land must be fenced in within five years, and the whole within seven years. Of the 14s. required to be expended in improvements in seven years, up to £30 may be allowed for a house, and half or two-thirds the cost of fencing, according to its nature. As conditions regarding fencing are somewhat different to those of older countries some information on this point may be interesting.

The standard usually required by the Department of Lands and Surveys is:—

(*a.*) For great stock, a fence with posts not more than 12 feet apart, with three wires;

(*b.*) For great and small stock, a fence of not less than six wires, with posts not more than 12 feet apart.

If posts are more than 12 feet apart, lacings or timber droppers must be introduced every three or four feet apart. Posts and rails, with wires, may also be accepted; also three wires and wire netting with posts 12 feet apart.

The cost of fencing, of course, varies with the distance from the market where wire or netting may be purchased, the amount of haulage required for posts, etc., but, as a

general average, may be put down at from £10 to £15 per mile for the cutting, haulage, and erection of the posts, including boring to receive the wires, and for the cost of wiring, at from 30s. to £2 per mile for each wire, strained and in position. The complete fence may be put down at from £20 to £25 or even up to £30 per mile for six wires.

On completion of the improvements as stipulated, the Homestead Farm becomes the absolute property of the settler in seven years.

Further areas may be secured under "Conditional Purchase," up to 2,000 acres of "first class" land, the price of which is generally 10s. per acre, payable in forty half-yearly instalments without interest. In this case, also, the holder is bound to carry out improvements, such as fencing and clearing, and to pay half the cost of survey. If taken up under residence conditions (which are identical with those described above in connection with Homestead Farms) the holder must spend in improvements within ten years, at the rate of one-fifth in every two years, an amount equal to the purchase money, and must reside on the land, either personally or by a wife, parent, or child over 16 years of age, for six months in each of the first five years. If taken up under non-residence conditions the improvements in the first ten years must reach 50 per cent. more than the purchase money. Then there is a provision for the purchase of second and third class lands, at a price (between 3s. 9d. and 10s. per acre) fixed after classification, and payable in 20 years. Improvements in this case must also equal the amount of purchase money, and residence on the land or adjacent holding is required for six months in the first year, and nine months of the following four years; but this may be done by agent or servant.

Every person is allowed to acquire up to 2,000 acres of cultivable land (that is, Homestead Farm and Conditional Purchase), or an equivalent area of grazing land, or cultivable and grazing land mixed. Where a man has selected up to the maximum allowed, his wife may hold a further

Mr. R. Hamilton's Farm, Moora.

1,000 acres of cultivable land or its equivalent area of grazing or cultivable and grazing land.

Five acres of grazing land are deemed to be an equivalent of two acres of cultivable land.

Any number of Conditional Purchases together with a Homestead Farm, held by the same selector, are considered as one with regard to improvements when they adjoin, and may be enclosed in a ring fence. The improvements required on the whole area so enclosed may be performed on any portion of the aggregate area, but blocks that are separated must be improved independently.

If so desired, blocks of from 100 to 1,000 acres may be purchased by direct payment (*i.e.* payment within 12 months), and deed will issue at any time when the necessary improvements (equal to the purchase money) have been made.

Blocks of not more than 50 acres, specially suited for orchards or vineyards, are sold at £1 per acre, payable in three years. To all these sales, conditions of improvement are attached, as it is not to the benefit of the country for land to remain idle. Provision is also made for small blocks for working men on easy terms.

To suit the case of persons (such as members of a community) who may not desire to reside on Homestead Farms, provision is made for Village sites, where blocks of one acre will be given for residence purposes without charge, and when the improvements on the Homestead Farm are completed the title will be issued without any charge beyond the fees of £2 10s.

In addition to the forms of tenure referred to above, the Government from time to time purchases exceptionally well situated large estates, and throws them open for selection after subdivision.

In other cases Crown Lands are surveyed into blocks and clearing or partial clearing undertaken, so that the settler

may at once make use of this land. The payment for these improvements extends over a number of years.

Pastoral Leases are granted at annual rentals of from 3s. to £1 per thousand acres according to the portion of the State they are in; and in some portions the stocking of the leases entitles the holder to a reduction of rent. All leases must be stocked with at least one head of cattle or ten head of sheep per thousand acres within two years of granting.

ASSISTANCE AND CONCESSIONS TO SETTLERS.

The administration of the Land Act is extremely liberal, and every assistance is offered to intending settlers to inspect land, and to get on to it after selection. The South-West Division, in which most of the agricultural settlement has taken place, is divided into a number of Land Districts, in each of which is stationed a Government Land Agent, whose duty it is to furnish information to intending settlers, receive applications and rents, and generally look after the land settlement of his district. Guides are provided at each of these agencies to take intending applicants out and show them the vacant lands, and afford them opportunities of seeing the work done by those already on the land. The services of the Guides are free of charge for four days if necessary.

Concessions in the matter of railway fares and carriage of goods are also granted when the settler is taking up his land; and the Education Department makes special arrangements to provide teachers even in isolated localities.

ASSISTED PASSAGES.

The Government of Western Australia grants assistance towards the passages of persons desiring to settle on the land either in farming, dairying, or other similar occupations, and to domestic servants and others who can satisfy

Harvesting, Wagin, G.S. Railway.

the Agent-General in London that they will make suitable colonists. The conditions are as under:—

1. Assisted Passages from £6 and upwards will be granted to suitable persons who are possessed of a capital of £50, or who are in receipt of an income of such amount as may be deemed sufficient by the Agent General. In the event of there being more than three children in one family under twelve years of age, the applicant must possess a further sum of £25 for each additional child.

2. Passages at £5 will be granted to suitable single Farm Labourers upon their depositing with the Agent General (in addition to the passage money of £5) the sum of £10, which will be refunded to them upon arrival in the State.

3. Passages at £5 will be granted to suitable Domestic Servants upon their depositing with the Agent General (in addition to the passage money of £5) the sum of £5, which will be refunded to them upon arrival in the State.

4. Residents of Western Australia temporarily resident in the United Kingdom may nominate at the Office of the Agent General in London, persons desirous of emigrating to the State, at prices ranging from £6 to £15 10s., according to the line of vessel and class of berth required.

All applications with reference to Clauses 1, 2, 3, and 4 must be made to—

The Agent General for Western Australia,
15 Victoria Street, Westminster,
London, S.W.

5. Persons resident in Western Australia may nominate their relatives or friends in the United Kingdom or Europe for passages at prices ranging from £6 to £15 10s., according to the line of vessel and class of berth required.

6. Approved persons emigrating to this State from countries other than the United Kingdom, Europe, and Australia, may obtain a refund of half the cost of passage money up to £9 10s. per adult (children half rate), pro-

vided that, on arrival, they take up land from the Government and settle thereon. This rebate is only obtainable when the applicant has been settled upon his land for such period as the Minister may decide. In order to take advantage of this concession it is necessary for the applicant to notify his intention of applying for it before emigrating to Western Australia.

7. Settlers and others who have left their wives and families in the Eastern States of Australia, New Zealand, and elsewhere can, with an approved guarantor, obtain an advance of passage money, including railway fares from port of landing to destination, repayable within a given time without interest, to enable them to bring their relatives and friends to the State. This system is also extended in some cases without guarantee to farmers who have taken up land in the State but who are not yet resident thereon.

All applications with reference to Clauses 5, 6, and 7 must be made to—

The Honourable the Colonial Secretary,

Perth, Western Australia.

Certificates of health and character must be lodged in connection with Clauses 1, 2, 3, 4, and 5.

No concession of this nature can be granted to clerks, artisans, or mechanics.

It is the intention of the Government to establish a depot for the reception of immigrants, for the purpose of housing them for a limited time at the lowest possible cost.

On arrival at Fremantle the immigrant will be met by an officer of the Information Bureau before the boat arrives at the pier. The Government Agent goes out by the pilot steamer and boards incoming mail boats, and is thus able to make himself acquainted with the needs of the passengers, whom he will assist in every way in connection with their luggage, business, accommodation, etc. The immigrants requiring land will be taken by this Officer to Perth

Plum Trees, Mt. Barker, G.S. Railway.
Mr. Teesdale Smith.

(the capital of the State) and handed over to the Lands Department, where officers are specially provided to deal with new arrivals desirous of taking up land.

Further particulars with regard to assisted passages may be obtained from

The Agent-General for Western Australia,
15, Victoria Street, Westminster, London, S.W.

LOANS TO SETTLERS.

The Agricultural Bank renders assistance to settlers by way of loans on the security of their holdings, and a very large number of settlers owe their present prosperity to the timely assistance afforded by the bank, when they wanted help to tide them over that stage between the exhaustion of their own capital and the time when their holdings began to yield a profitable return. The bank lends in sums of from £25 to £500 for the purpose of clearing, fencing, ringbarking, or water supply; but loans should be arranged before improvements are started.

During the first five years, interest at the rate of 5 per cent. per annum is charged on the amount of the loan. After that time the principal is repayable in twenty-five years by half-yearly instalments, plus interest on the balance still owing from time to time. The amount of £300 may be advanced on the fair value of the improvements as they are effected; and an additional £200 up to 50 per cent. of the value of the improvements proposed to be made, may be lent. Thus for improvements to the value of £700 the bank will assist to the extent of £500. If desired a portion of the £500 advance, up to £100, may be made for the purpose of purchasing breeding stock.

Up to the 30th June, 1907, the Bank had advanced to settlers an amount enabling them to clear 275,966 acres, cultivate 182,007 acres, and do other improvements aggregating in cost £795,270, besides advancing £86,098 to purchase plant, stock, etc.

POSSIBILITIES FOR THE PRODUCER.

[illegible] to a large extent the future of the agricultural [illegible] as a whole is bound up with the possibilities in [illegible] of an export trade—and the advantages pos- [illegible] State of Western Australia in that respect [illegible] been pointed out—it must not be forgotten [illegible] is a very large market within the State itself. [illegible] the exception of one or two lines it will be many [illegible] local production can overtake the demand.

[illegible] portion of the population are not producers, [illegible] engaged in mining, timber, and general [illegible] with the inhabitants of the towns and cities, [illegible] which, in default of sufficient local sup- [illegible] be met by importations from the other States. [illegible] the official list of importations of articles of [illegible] production, all of which could be raised in the [illegible] absorbing interest as showing what a great [illegible] industry there is before the tiller of the soil.

[illegible] such imports for the last ten years to the [illegible] 1906 shows that Western Australia has, in the ab- [illegible] local producers, been sending out over a million [illegible] of money every year, the totals for the ten [illegible] under the respective headings being as under:—

	£
Agricultural produce	4,451,358
Fruit and Vegetables	1,652,941
Wines	345,145
Live Stock	2,309,386
Farm and Dairy produce ..	6,712,570
Total	£15,471,400

[illegible] he farming industry has been making gigantic [illegible] many years it has not been able to cope with [illegible] easing demands of a growing population; and [illegible] ork before the producer is shown by the fact [illegible] the multiplication many times of production [illegible] tate, and though in one or two leading lines

Mr. Evans's Farm (12 months' work), Moora

production has gained on local demands, the importations show a tendency rather to grow than to decline, as will be seen by the yearly figures which make up the total shown above:—

	£
1897	1,606,134
1898	1,457,200
1899	1,178,980
1900	1,324,008
1901	1,495,244
1902	1,758,771
1903	1,797,053
1904	1,570,466
1905	1,564,828
1906	1,718,716
	£15,471,400

A glance at some of the items which make up the totals under the different headings as given in the first table shows that to a great extent farming progress has as yet been mainly along the lines of cereal growing. This is but natural, as after the preliminary work of clearing, etc., the pioneer finds the readiest means of obtaining a quick return for his outlay lies in the wheat crop. Thus we find that while in 1897, with a smaller population, the State imported £51,282 worth of wheat, and in 1898, £56,906 worth, production has increased so rapidly that in 1906 the outlay in this respect was only £5,046. In the first eleven months of 1907—up to which date the latest returns available are made—the import of wheat had practically ceased, amounting to only £1,195, while £80,728 worth was sent out of the State to places beyond Australia. Similar results are shown with regard to flour, hay, and chaff, and one or two other articles; but in other lines there are enormous local opportunities before the husbandman. For instance, in the ten years under review £818,110 has been sent to other States to pay for oats; and how little has been done to meet the demand is shown by the fact that the outlay of £87,552 in 1906 was only twice exceeded

during the decade. Potato growing, for which there is much excellent land in the South-West, also calls for very much more attention, as the imports have grown enormously, reaching £99,242 in 1906. The imports of barley and malt, rice, maize and various grain and pulse crops cover proportionately large sums. The items under the head of fruit and vegetables furnish equally striking evidence of the opportunities for expansion; and despite the thousands of acres which have been laid out in orchards and gardens the constantly growing demand is far from being met. The imports of fruit and vegetables—fresh and preserved for the last ten years averaged £165,000 per annum; but the imports for 1906 reached £194,000, showing that the demand is increasing at a greater rate than the supply. For Wine production Western Australia offers a most magnificent field, yet it has to import about £40,000 worth annually; while over £200,000 per annum is sent away for horses, cattle, sheep, etc., to make up for the shortage in the local supply of live stock.

But the most striking figures of all are those under the head of farm and dairy produce; and the ready and assured market which awaits the producer is shown by the following figures showing the imports for the ten years:—

	£
Meats (fresh and preserved) ..	1,193,252
Hides and Tallow	4,014
Bacon and Hams	1,085,284
Poultry	35,216
Eggs	633,455
Lard and Dripping	81,567
Honey	19,506
Beeswax	1,032
Butter	2,540,451
heese	266,468
reserved Milk and Cream ..	852,325
	£6,712,570

Crossbred Cattle (Shorthorn and Brahmin)

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Crossbred Cattle (Shorthorn and Brahmin)

To show that the prospect of coping with the ever-increasing demand for the articles just enumerated is still very remote, the aggregate figures for the respective years are appended:—

	£
1897	515,494
1898	516,213
1899	488,300
1900	579,228
1901	617,561
1902	774,823
1903	827,462
1904	795,496
1905	790,907
1906	807,086
	£6,712,570

These figures speak louder than words of the urgent need for largely increased agricultural population. There is not the slightest reason why the whole of the items enumerated should not be produced in the State and give highly remunerative employment to thousands of persons who are at present struggling under the cramping conditions of older countries. With land to be had at exceedingly moderate rates, over a wide range of country, with suitable conditions of climate and general surroundings, the man of enterprise and industry cannot fail to see in the figures produced above opportunities for the profitable employment of his energies in a congenial occupation and with every reasonable assurance of materially advancing the welfare of himself and those depending on him.

But the figures just given and commented upon must not be understood as putting a period on the possibilities of agricultural production in the State. They are designed to show the vast opportunities which exist before the requirements of the State itself are met. Beyond that lies the *practically* illimitable field of export. The Eastern

States, where land is much more difficult to get and very much dearer in price, and which are farther away from the world's chief markets, export with great profit millions of pounds' worth of the produce which Western Australia is still importing. This State then offers, with its cheap and abundant land, not alone an unsatisfied local market, but a future export trade on more advantageous terms than its neighbours.

Pastoral Lands—Gingin, Midland Railway

THE TIMBER INDUSTRY.

The work of felling and milling of our valuable indigenous timbers takes an important place in the ranks of the great primary industries of the State. The value of the exports under this head increased from £192,451 in 1897 to £708,993 in 1906. In this industry alone, no less than £97,000 has been invested in land and buildings, and £487,000 in plant and machinery, a total of £584,000. In addition to this, the Timber Companies have spent £351,742 in the construction of railways to open up the forests. This industry employs about 2,800 men, and its annual wages sheet amounts to nearly £315,000. The great value of the forest timbers of Western Australia is known throughout the civilised world, and there is scarcely a European country which has not been a customer for some of our hardwoods.

First and foremost amongst our timbers is the Jarrah, world-famed as a hardwood for its durability and resistance to the ravages of white ants, dry-rot, and teredo. The latter in tropical countries is specially destructive in wood used for wharves, jetties, etc. The jarrah, which belongs to the Eucalyptus family, grows over an area of about eight million acres. The trees grow as high as 120 feet, with fine straight stems 3 to 5 feet in diameter, and about 50 feet to the first branch. Seasoned jarrah weighs 60lb. to the cubic foot. The timber is of great value for work under ground or water, for wood-paving, and general building. Karri, another of the Eucalypt family, grows larger and taller than jarrah, and is of great value for bridge or raised work. While not so resistant of destructive agencies as jarrah, it has a greater tensile strength. It is less abundant, being confined to an area of about one and a quarter million acres in the extreme South-West.

Other timbers of value are the Tuart, a specially dense *and tough timber*, but comparatively scarce; Wandoo and

York Gum, two heavy, dense, and durable timbers. Sandalwood also supplies a considerable item of export, principally to Oriental countries, where it is used for incense.

Leases to cut timber over certain areas were formerly granted at a rental of £20 a square mile, but this has been superseded by a system of royalties on the timber actually cut.

Other timbers, especially the Jam (which, though little more than a stick, makes excellent and very durable fence posts), are of much use to the settler. The bark of the mallet tree is of great value for tanning purposes; and many a farmer has been well started in life by the money received by the sale of the bark. About a quarter of a million tons of this bark, valued at about £100,000, were exported last year.

In order to secure reliable data with regard to the physical characteristics of the most important of the valuable hardwoods of Australia, the Western Australian Government had, in 1907, a series of exhaustive tests made with the latest appliances and upon the most approved methods. The work was entrusted to Mr. G. A. Julius, B.Sc., M.E., and the result as published in detail forms a valuable work of reference for timber users throughout the world. The tests for strength were made for "cross-bending," "end compression," "cross compression," "hardness," "tension," and "shearing," and were made on an elaborate scale, the 24 varieties of hardwood selected being subjected to 25,800 tests under uniform conditions. The result was to show the very high position held by Western Australian timbers, for in the tests for strength at 12 per cent. moisture the timbers of this State hold seven places out of the first nine. Other important factors in connection with timber are those of durability and quantity available. Western Australian Jarrah holds a very high position in regard to the first, and the quantity available is greater than any other timber in Australia.

———

DARRAH FOREST

THE PEARLING AND FISHING INDUSTRIES.

PEARLING.

This is an important industry, responsible for the employment of a very large number of men. Its chief head quarters are at Broome, on the North-West coast.

Two distinct species of mother-of-pearl shell contribute towards the export trade of this article from Western Australia. The main and most valuable portion is represented by the large mother-of-pearl shell (*Meleagrina margariti-fera*), limited to tropical waters, and obtained more or less abundantly from Exmouth Gulf northwards.

This is the species from which massive mother-of-pearl shell articles are manufactured, and from which the largest and finest pearls are obtained.

The second species of mother-of-pearl and pearl producing shell is that known commercially as the Sharks Bay variety (*Meleagrina imbricata*).

This species is of comparatively small size, and is almost exclusively used for the manufacture of buttons of small and inferior descriptions.

The value of the export of pearls and shell for the last 10 years ending 1906 amounts to £1,600,000; for the year 1906 it amounted to £255,182.

FISHERIES.

Western Australia, with its coast line of approximately 4,350 miles, produces, as might be expected, an abundant and varied fish supply, with the essentially distinct fishing products and industries peculiar to both tropical and ter

KING KARRI 242 FEET HIGH 40 FEET GIRTH

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MINING.

Apart from the romance invariably attaching to the opening up of rich mining fields, the history of the gold discoveries in Western Australia is of peculiar interest, inasmuch as the abnormal advance in population, in land development, in shipping, water supply, and in fact in everything affecting the material welfare of the State is directly traceable to the great discoveries of about 15 years ago.

As already pointed out, the progress of the State during the first 60 years of its history was exceedingly slow, and Western Australia, which equals in area the United Kingdom, France, Germany, Austria, Portugal, Hungary, Norway, Switzerland, Denmark, and Belgium combined, was peopled by a mere handful of people not exceeding the number which may now be seen at some of the great open-air gatherings in the Capital. Agriculture was at a standstill almost, owing to the limited market; and other industries equally lacked incentive to progression. Seeing the advantages which had accrued from the gold discoveries in the Eastern States, and firm in the faith of the mineral resources of this State, some of its inhabitants took all the means in their power to open them up; but the area to be explored was so vast, and the country then so undeveloped, and the means so limited, that the work was attended with untold difficulties.

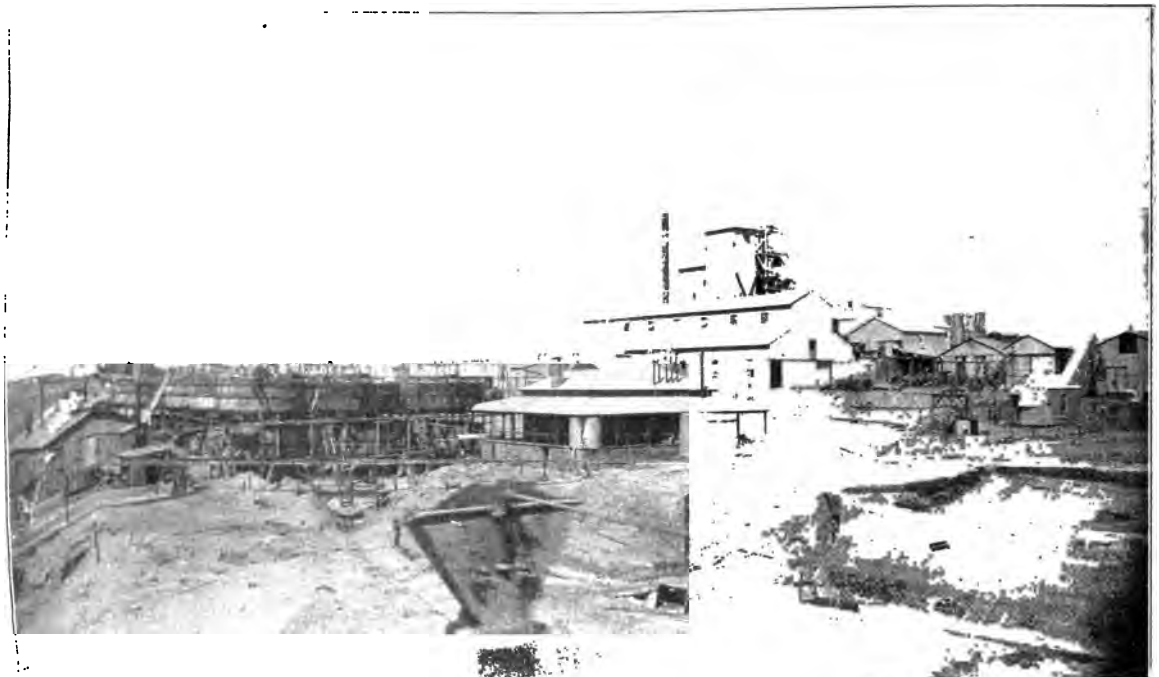
The first discoveries were not of gold but copper, and were made in 1842, and success attended the earlier operations, but a serious check was given to mining development by the exodus resulting from the gold discoveries in the East in 1851. Some few prospectors continued, and a

number of hardy pioneers pushed out hundreds of miles East in absolutely unexplored country.

In 1855 an explorer named Hunt discovered the fine tract of pastoral country now known as Hampton Plains, but he missed the closely adjoining Coolgardie and Kalgoorlie mineral fields, then only occupied by aboriginal tribes. By rewards and other means the Government attempted to stimulate the search, and the first tangible result was in 1884, when the Kimberley Goldfield in the far North was opened up, and in a short time a couple of thousand men had braved the dangers of a wilderness in a tropical clime. The field, though paled into insignificance by later discoveries, has since produced about 30,000 oz. gold. The discovery gave new life to the search in the Southern and Eastern portions of the State, and the annals of the time recount many stories of daring bravery and hardship encountered by the pioneers.

In 1887 the Southern Cross field, on the way between Perth and Coolgardie, was opened; and this field has since produced about 400,000 oz. of gold. With the incentive given to prospecting, the development of the mineral industry received a further fillip. In the few years following the Pilbara, Ashburton, and Gascoyne fields were opened up. These produced many rich nuggets, and their total output has been 240,000 ounces. Almost immediately after the Murchison and Peak Hill district was found to carry stores of the precious metal, and this was the greatest discovery which had been made up to 1891, as the produce of the fields has exceeded in value ten million pounds.

Population increased rapidly, and among the new-comers were many sturdy pioneers from the East, and these men brought their skill and experience to bear with the most gratifying results. Scarcely had the State had breathing time in which to realise—if but slightly—the vast potentialities of its mineral resources before the great events came which launched it permanently upon the seas of progress and prosperity, and it is meet that we should dwell upon the episodes of that stirring time with a little more detail,



W[illegible] Mount Morgans Gold Mine.

as the advance made by agriculture and other industries, and the State generally, is bound up therewith.

THE DISCOVERY OF COOLGARDIE.

Messrs. Bayley and Ford, two Victorian miners who had been prospecting on the Murchison, left Perth on a prospecting expedition in April 1892, and proceeded to Mount Kenneth, about 250 miles to the North-East; whence, having lost their horses, they had to return to Newcastle, where they bought fresh ones. They then started for Southern Cross, whence they proceeded Eastward along Hunt's old track made in 1864-5, and after a tedious trip, when they were near the now famous field, were forced to turn back for water.

After resting for two days, they started in a North-Westerly direction, and reached the native well "Coolgardie," where they camped and turned their horses out on the excellent pasturage they found there. They soon found they had reached the sought-for Bonanza. Ford picked up a half-ounce nugget, and before dinner time they had found over 20 ounces of gold. During the next three or four weeks they had secured, from the surface, over 200 ounces. Their provisions giving out, they returned to Southern Cross for fresh supplies. Saying nothing about their discovery, they hastened back and on the first Sunday after their return discovered the reef which soon became known all over the mining world. That evening they picked out from the cap of the reef over 500 ounces of gold, one slug weighing over 50 ounces; and next morning they pegged out a prospecting area.

Shortly afterwards Messrs. Foster and Baker, who had tracked Bayley and Ford from Southern Cross, came up with them and soon secured more than 200 ounces. Meantime Bayley made his way back to Southern Cross, taking with him 554 ounces of gold, which he exhibited to Warden Finnerty on the 17th September, 1892, and applied for a lease of the site of the discoveries made. The field wa

declared open, and on the 20th Bayley returned accompanied by a coach, teams, and fully 150 men equipped for fully prospecting the locality, and leaving Southern Cross practically deserted. The news quickly spread all over Australia, and a rush of eager fortune hunters from all quarters dotted the field with the tents of the prospector.

At that time the railway from Northam to Southern Cross had not been completed. Men travelled through the waterless tract of country on foot, horseback, bicycles, and in vehicles of all descriptions, while food, stores and tools were sent forward by horses or donkey teams, or on long strings of camels. Along the track, with intervals between, were hugh dome-shaped bosses of granite, some of which covered large areas of ground. On their tops and sides were holes and hollows that held water after rains, while along their bases were "soaks" in the sand where water could be obtained in a few feet of sinking, but the supply was small and uncertain in view of the great demand being made on it. Enterprising men quickly began to do a thriving trade by condensing the salt water to be found plentifully along the route, and disposing of it to the thirsty teams at as much as 2s. 6d. per gallon, or even higher. Diggers swarmed over the flats for miles round Coolgardie, pegging out claims which in a large number of instances yielded rich returns. A town sprang up as if by magic. Bag and "hessian humpies" rapidly gave way to wood or iron structures or to more permanent buildings of wood or stone. Coaches for mail and passenger traffic, and team upon team of horses and camels for the carriage of stores were rushed to the fields. The nearest telegraph station being at Southern Cross (113 miles distant), messages were despatched by Afghans on swift camels, or by the corps of cyclists which was soon ·lished, to keep up regular communication, while the ›n of the Telegraph line was being completed.

Railway was pushed on from Northam, and in *896,* was within 50 miles of Coolgardie, arriving *the end of* the year. Great activity was also

Boulder, from Maritana Hill.

shown by the Government in the matter of improving the water supply throughout the quickly extending field, and wells were sunk, tanks excavated, and tracks cleared without delay.

Meanwhile Bayley and Ford had been gathering in gold from their rich reward claim, but the actual results were not made public. In November they sold their claim to a company for £6,000 cash and one-sixth interest in shares. Of the cash, only £100 was paid down, but the balance was extracted from the mine in a very short time.

In April, 1903, a parcel of 2,500 ounces, worth £10,000, was lodged in the bank; on the 7th June a further lot of 3,185 ounces was banked, and on 6th September a third lot of 3,605 ounces. In December a parcel valued at £30,000 was displayed from this mine. Subsequently additional leases were added to the Reward Claim and the whole was floated into a Company in London. Including the gold mentioned above, and up to July, 1901, the gold reported from the mine amounted to 134,061 ounces, valued at £529,454, and dividends amounting to £183,600 were paid.

Good fortune has not, however, followed recent operations.

Prior to 1894 the output of this field was included in that of Yilgarn, but the official returns to the end of October, 1907, show the total yield as 1,185,786 ounces.

From Coolgardie, prospectors searched the country for miles around, and various smaller finds were opened up. In June, 1893, Flannagan and Hannan discovered the alluvial field named after Hannan, and later known as Kalgoorlie. A large quantity of alluvial gold was obtained by the 2,500 diggers who quickly swarmed over this new field; and of still greater importance was the discovery of some of the rich reefs of the Golden Mile, in the neighbourhood.

In 1894 the sensational discoveries of the Londonderry and Wealth of Nations occurred. The former was discovered by a party of unsuccessful prospectors on their

way back to Coolgardie; two of them picked up some rich gold-bearing specimens. After a brief search, the outcrop of a reef was exposed, from which in the course of a few days they took out 4,000 to 5,000 ounces of gold. One specimen was estimated to be worth £3,500. From the cap of the Wealth of Nations reef gold to the value of £20,000 was secured in a few days. One specimen contained fully 800 ounces, and two nuggets of 197 and 147 ounces were secured.

Unfortunately these phenomenal discoveries did not develop into mines of size or permanency. But the mines of

KALGOORLIE AND BOULDER,

in the East Coolgardie Goldfield, had by then commenced to show the richness of their ore deposits, apart from the alluvial, and to indicate that the mines of Western Australia were not all of a patchy character. East Coolgardie Goldfield is comparatively small in area, but contains the richest mines in the State. The field was prospected in September, 1894.

In 1895 the Lake View Consols and the Great Boulder mines commenced to show their capacity as gold producers, and in the neighbouring mines rich developments were taking place. Ten of the mines in this district have proved of great value. Of these, only one, the Lake View Consols, has fallen back from the rank as a gold producer. The remainder have steadily increased their output, reduced their costs, and continued sinking their shafts and opening fresh levels. The Great Boulder has proved its ore body to be payable at a depth of 2,000 feet, and its neighbours have every reason to anticipate equal good fortune when they shall have reached to corresponding levels. This field is noteworthy in the fact that it was the first in Australia in which telluride gold was discovered in quantity. The machinery and metallurgical plants on the mines rank as the most complete and up-to-date in the world.

The quantity of gold won from the alluvial in the early days is not accurately known, but up to the middle of 1896

Great Fingall Gold Mine—Dump and Elevator

returns of the whole of the output were included in those of the Coolgardie Field. At the end of 1897 the export of gold, with Mint returns, showed 268,411 ounces. The following year this was nearly doubled, and in 1899 was almost quadrupled. In 1903 the record output of 1,151,238 ounces was reached. The grand total for the field up to the 31st October, 1907, was 9,495,000 fine ounces.

During the evolution of this field, two fine towns, Kalgoorlie and Boulder City, sprang into existence; and in the matter of electrical lighting, electric tramways, telephones, etc., they excel many of the larger and older cities of Australia.

VALUE OF GOLD PRODUCED.

The wealth won from the Gold Mines of the State during the 21½ years since the Kimberley discovery, may be summarised as follows:—

	£
In 1886 the value of their output was	1,148
In 1896 it rose to	1,068,808
In 1904 it rose to	8,424,226
In 1906 it stood at	7,622,749

Grand Total to 31st December, 1907, £78,004,409.

MINERALS OTHER THAN GOLD.

Besides Gold, Western Australia possesses rich Mineral wealth in Tin, Tantalite, Copper, Ironstone, Lead, Silver, and Lead ores, Coal, and Limestone, all of which are being worked profitably and afford employment to a considerable number of men.

Tin has been worked for a number of years at Greenbushes in the South, and Marble Bar in the North of the State. At Greenbushes, the total yield to October, 1907, was 6,180 tons of black tin of the value of £A27,836. The industry here is steadily forging ahead, and at the present time affords employment to about 500 miners. During

the first ten months of 1907 this field produced 667 tons of tin ore, valued at £65,831. At Marble Bar the total yield is 3,643 tons of black tin to the value of £306,704. This field affords employment to about 500 men, who produced during the first ten months of 1907, 84 tons lode and 648 tons stream tin, to the value of £77,036. The grand total of the Tin production of the State to the end of October, 1907, is 9,822 tons, of the value of £734,340.

Copper.—Copper has been worked with more or less success at West Pilbara, Nannine, Day Dawn, Mt. Morgans, Phillips River, Yalgoo, Northampton, and a few other less important centres. The total yield from these centres is valued at £666,489.

Tantalite.—Associated with the tin on the above fields, Tantalite has been obtained to the extent of 88 tons, value £13,159.

Ironstone.—Iron ore is widely distributed over the State, and although none has been worked as yet for the purpose of manufacturing iron, yet many of the deposits are exceedingly rich, and will ultimately afford a very large field for employment. At present what has been raised has been chiefly used for fluxes in reducing other ores. The records show that 57,820 tons have been raised at a value of £36,683.

Lead Ore.—Northampton is the principal field in which lead ores have been worked; but owing to a variety of causes, one of the chief of which was faulty smelting, in which more than 40 per cent. of the metal was allowed to run away in the slag, and the falling price of lead, the mines have practicaly ceased work for some years. The lead ore mines were worked as far back as 1850, and up to the end of 1898 they produced 33,644 tons of lead ore of the value of £364,756. Since then operations have almost entirely ceased.

Silver-Lead Ore.—Although galena has been reported as existing in several localities, the Ashburton is the only field on which mining has been carried on. During

Tin Dredging Plant, Greenbushes.

1901 and 1902, 57 tons of ore were raised, to the value of £429. Since then little has been done until 1907, when some of the mines were again taken up.

Coal.—Previous to 1899 the Coal Fields of the Collie River were practically only in their prospecting stage, and in that year the amount raised was 3,508 tons, to the value of £1,761. The coal is not of the same calorific value as that of New South Wales; and then it has had a hard struggle against local prejudices, notwithstanding which the industry has gradually forged ahead. During 1906 the output amounted to 149,755 tons, the value of which was £57,998. The total yield of the mines to the end of October, 1907, was 1,103,125 tons, of the value of £533,049. Happily much of the prejudice is being removed; and for some industries it is found that Collie coal is superior to the imported. About 255 men are employed on the mines.

Limestone.—Limestone, worked chiefly as fluxes for the reduction of ores in smelting, has been raised to the extent of 93,407 tons, valued at £15,911.

TOTAL YIELD OF THE MINING RESOURCES OF WESTERN AUSTRALIA.

The total value of all the minerals won in Western Australia up to the 31st October, 1907, and gold yield to 31st December, 1907, is as follows:—

	£
Gold	78,004,409
Tin	734,340
Tantalite	13,159
Copper	666,489
Ironstone	36,683
Lead Ore	364,884
Silver (estimated)	200,000
Silver-Lead Ore	429
Coal	533,049
Limestone	17,518
Total	£80,570,960

DIVIDENDS.

The first dividends were paid in 1890, amounting to £1,250.

	£
In 1904 they amounted to	2,050,547
In 1905 they amounted to	2,167,630
In 1906 they amounted to	1,993,698

Grand Total to the 31st December, 1907, amounted to £17,475,328.

THE VALUE OF MINING MACHINERY

on the 31st December, 1907, was estimated at £4,400,000.

GOLD-MINING LEASES.

The total area held at the end of 1906 as Gold-mining Leases was 29,370 acres, comprised in 2,181 leases, and 273 Mineral leases with a total of 27,171 acres; grand total, 56,541 acres.

During the past five years the number of leases has but slightly varied. This is due to the liberal conditions under which prospecting areas may now be acquired; and under them a miner can hold and prospect ground much more easily than he can under lease.

STATE AID TO MINING.

Right from the early days of Western Australia, the Government has been liberal in the encouragement of mining development. Rewards in money and lease have been given discoverers of new fields, and year by year the Acts and Regulations have been revised and liberalised to make the acquisition of auriferous lands more simple, and its tenure more secure. In recent years funds have been made available for the assistance of the prospector and miner in developing his lease.

Main Shaft, Collie Proprietary Coal Mine, Collie.

To enable prospectors to test the reefs they may find, and to give leaseholders facilities for treating ores, the Government have erected 32 STATE BATTERIES in different localities for the treatment of gold-bearing ore, and 2 tin-dressing plants at Greenbushes. These batteries and plants cost £237,927, and have produced gold to the value of £2,237,110.

A result of this policy is seen in the small ore deposits that are owned and worked by parties of men, with profitable results.

WATER SUPPLY.

From an early date in the development of the Fields, the Government took vigorous measures to obtain and supply water; and the cost of boring, conservation, and construction of tanks and roads, etc., has amounted to over a million pounds sterling. By the rapid increase of mining at Kalgoorlie, it became apparent that the natural supply of salt water from the mines would not suffice for the needs of ore-reduction works, irrespective of what was required for condensing for domestic purposes. The prompt solution of so serious a problem was of vital importance, and in 1895 the Government called upon the Engineer-in-Chief of the State, the late Mr. C. Y. O'Connor, to initiate and recommend a scheme capable of overcoming the difficulty. This he at once undertook, and the scheme proposed and adopted was for the daily supply of 5,000,000 gallons, at a probable cost of £2,500,000. The site selected for the supply weir, or reservoir, was at Mundaring, in the Darling Ranges, with a catchment area of 569 square miles, and a holding capacity when completed of 4,600 million gallons.

From this reservoir the water is pumped through 30-inch steel pipes by a series of eight lifts, to which the water is successively pumped till it reaches the main distributing Reservoir at Bulla Bulling, 308 miles from the Mundaring Weir, and 1,290 feet above the lowest outlet level at Mundaring. The gross total height, including

allowance for friction, etc., to which the water has to be pumped, is 2,655 feet.

The Bulla Bulling Reservoir has a capacity of twelve million gallons. From there the water gravitates 21 miles to the service reservoir at Coolgardie, with a capacity of one million gallons, and thence 23½ miles to the Kalgoorlie Reservoir of two and a half million gallons. The total length of the pipe line from Mundaring to Kalgoorlie is 311½ miles. The total cost of the scheme, which was completed to Kalgoorlie in 1902, was £2,660,000.

The quantity of water consumed for the year ending 1906 was 600,148,000 gallons, an increase of nearly 90 millions over the preceding year.

RAILWAYS.

The total length of railways constructed to serve the Mining industry is 889 miles. Of this length, the lines from Northam to Southern Cross, Kalgoorlie, Boulder, Kanowna, Menzies, Leonora, and Laverton represent 567 miles, and those from Geraldton to Mullewa, Cue, and Nannine, over 302 miles.

The cost of construction, including land, rolling stock, reservoirs, and deviations, but not including cost of surveys and departmental charges, has been:—

	£
In the first group	1,568,135.42
In the second group	634,737.15
Total	£2,202,872.58

FUEL FOR THE MINES.

Wood is the principal fuel in use at the mines, and this supply forms a large and lucrative branch of industry on the Fields, and represents an important part of the Railiness of the State. The country around Coolgardie, *lie, etc., is well stocked* with Salmon Gum, a species

Great Boulder Perseverance Gold Mine, Boulder.

that furnishes good mining timber, and excellent fuel. Companies have been formed which have acquired concessions over large areas of timber country and the right to construct railways. These lines branch off from the main Government Railways in several directions, and have an aggregate length of over 150 miles, and convey more than 32,000 tons of firewood per month to the mining centres, while a large number of men and horses are kept in constant employment in cutting and carting the firewood to the lines.

SCHOOL OF MINES.

Among the many benefits arising out of the Mining industry is the establishment of the School of Mines. This is under the direct control of the Department of Mines. The School was originally opened at Coolgardie in 1902, but was transferred to Kalgoorlie. It is well equipped with all the necessary appliances for the instruction of the students, and its situation amid the principal gold mines of the State affords exceptional opportunities to students to become acquainted with the most modern methods of mining and of ore treatment. To meet the requirements of students who may be engaged in work on the mines, all the work of tuition is duplicated by repeating in the evening what has been done during the day. The fee for the full course of lectures is £5 5s. per term, and thus the advantages of study are brought within the reach of all classes of the community. The total enrolment for 1906 was 332 students for the first and second terms, and 275 for the third.

Through the establishment of this School, the State is making it possible for students to perfect themselves in mining engineering, and assisting Australia to produce men fitted to carry on the mining in years to come.

THE ROYAL MINT.

The application of the Government for the establishment of a *Branch of the* Royal Mint was granted in October,

1897, and in little more than two years the present handsome building was formally opened in Perth. The main object was to provide a market in which the gold producer would be certain to obtain a return for his gold according to its value, which was often not possible where he had to deal with private buyers. The opening of the Branch in Perth was therefore a material benefit to him; and although some of the larger companies ship their gold direct to London, yet up to the close of 1907 the Perth Branch has received 8,852,898 ounces, of the toal value of £37,604,720.

View of Boulder from "The Brown Hill."

1897, and in little more than two years the present b
some building was formally opened in Perth. The
object was to provide a market in which the gold proc
would be certain to obtain a return for his gold accor
to its value, which was often not possible where he ha
deal with private buyers. The opening of the Branc
Perth was therefore a material benefit to him; and alth
some of the larger companies ship their gold direc
London, yet up to the close of 1907 the Perth Branch
received 4,352,398 ounces, of the toal value of £37,604

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A FOREST OF BLACKBUTT

A FOREST OF BLACKBUTT

MANUFACTURING INDUSTRIES.

As in all new countries, the attention of the people of Westen Australia is directed rather to the production of raw material than to its manufacture; and the industries of the people are chiefly those which cater for the immediate wants of the inhabitants, to supply which, from their very nature, it is impracticable to take advantage of the established industries of other countries. Hence the most important industries are those relating to building, such as those of brickmaking, working wood or metals, the making up of textile fabrics into clothing, etc., the production of heat, light, or energy, and so on. From their very nature many of these cannot be imported, hence the main industries of Western Australia are devoted to supplying those wants which are within the skill or means of the pioneers of our industries to provide. It exports wool, and gets it back in the form of woollen stuffs, the working up of which into clothing, etc., provides employment for nearly 2,000 persons. It has exported some £73,000,000 worth of gold, for a large portion of which it got back machinery, rails, rolling stock, and manufactured goods which were beyond the skill or means of its present artisans to supply, and without which they would have been unable to carry on the industries which have been already locally established. Without the wood-working machinery it would have been impossible to establish those industries for the working up of the indigenous timbers which afford employment to 3,478 people. Without iron-working machinery to start with, the 2,480 metal-workers who find employment in the foundries and machinery yards, smithies, and plumbers' shops would have been unable to establish their industries. And so on, right through, the export of raw material and natural products has enabled the State to provide machinery and appliances by means of which the time is rapidly approaching when its

industries will extend, and much of the natural product and raw material which is now leaving the country will find employment for many thousands of people in the production of manufactured goods which are now imported. Western Australian looms will be converting Western Australian wool into textile fabrics for the use of Western Australian people. Western Australian furnaces and forges and rolling mills will be converting our rich deposits of iron ore into "pigs" and rails and plates from which to manufacture the locomotives and rolling stock for its railways, and the machinery for its mines. Its flour mills, already well established, will be converting into Western Australian flour the large shipments of wheat which we are already sending to South Africa and the Eastern States of the Commonwealth. Factories will spring up at numerous centres and find employment for the millions of population which Western Australia is destined to support, in bringing into manufacture the raw material for the production of which her potentialities are so great.

In the meantime the population of a little over a quarter of a million is too small to allow of many of the larger industries being touched as yet: they will have to wait till an increased population and augmented financial resources render the exploitation of many of our latent potentialities possible.

But yet much has been done, in a small way it is true, to work up our natural products and the raw material which forms some of the by-products of the agricultural and pastoral pursuits which have now taken a foremost place in the industries of the State. Bone mills have been established to work up the refuse of the slaughter-houses into valuable manures. Tanneries are already converting the hides and pelts into marketable leathers; Soap and Candle works are absorbing the tallow; Bacon factories are converting pigs fattened on the "waste" product of the farm into pork, and the hams and bacons exhibited at the various Agricultural Shows held throughout the State compare favourably with any that are imported;

Cattle Pastures, Yatheroo.

works for the preparation of jam, pickles, sauces, and vinegars are utilising much of the product of the farm, the orchard and the vegetable garden, and the goods turned out from them find ready places in the principal shops, as well as at many of the tables of the State; butter factories have already begun to take the milk supply from the dairy herds; flour mills are turning out flour from the high-grade Western Australian wheat, which is second to none produced in any portion of the world. Boot and shoe factories are converting our locally produced leather into footwear for the people, and other leather goods factories are providing portmanteaux, hand-bags, and travelling trunks, while saddle and harness making establishments add to the demand for the product of the tanneries. Monumental works are utilising the native granites and diorites, and wine-making establishments are turning out excellent products from the vineyards.

These industries are as yet for the most part small, but they afford employment to a considerable number of men in the aggregate, and are only beginnings which indicate what the industrial development of the State is approaching.

In the industries above referred to, £377,500 have been expended in land and buildings in which to carry them out, while £126,000 has been invested in the necessary machinery and plant.

The whole of the wood-working industries, including box and packing-case factories, forest saw-mills and town saw-mills and joinery works provide work for 3,478 men, employ 3,000 horse-power to drive their machinery, have invested £725,000 in land, buildings, plant and machinery, and pay £410,000 in wages annually.

The next industry of importance in providing employment for the skilled artisan is metal working and machinery. This industry embraces Agricultural Implement factories, employing 40 hands and paying wages to the extent of £1,800 per annum; Engineering Works, Iron Works, Foundries, and Plumbing and Tinsmithing estab-

lishments, which employ 988 men and pay wages to the value of £122,272; the Railway and Tramway Workshops, which find work for 1,275 men who draw wages to the extent of £172,000; Smelting and Metallurgical works in which 164 men are engaged at salaries aggregating £24,371; and wire netting factories paying wages of about £1,000 annually. All these works employ in the aggregate 2,480 hands, utilise 1,547 steam and horse-power, 2,481 electric, 211½ oil, and 4½ gas, horse-power, a total of 4,244 horse-power, in driving their machinery. They have invested £460,564 in land and buildings, £287,032 in plant and machinery, and pay wages to the amount of £324,486 annually.

A group of industries coming under the heading of Books, Paper, Printing, Engraving, and embracing Cardboard and paper-box making works, Photo and Photo-Lithographic establishments together with printing and bookbinding works, provide employment for 1,084 hands, of whom 153 are women. They use 434 horse-power in running their machinery, most of which power is electrical; they have invested £332,439 in land, buildings, plant, and machinery, and pay £151,549 in wages and salaries.

Aerated Water and Cordial Factories, of which there are 75 in the State, employ an aggregate of 403 hands. They have invested £124,475 in property and plant, and their wages sheet amounts to £41,080. The 29 Breweries in the State find employment for 488 men; they have land, buildings, and plant to the value of £245,376, and pay wages to the extent of £83,687 annually. These figures are interesting, as they show that while the aggregate wages paid by these two industries bear an equal proportion to the respective amounts invested in them, yet the rate of wages paid by the Breweries is nearly double, per man, those paid by the cordial factories, the former being at the rate of £172 per man per annum, while the latter is £103 per man. These two industries form part of a group *under* the head of "Drinks and Stimulants" which embrace " *and refrigerating* works, condiments, coffee, malt, and *works.* *This group* of industries employs 1,000 men

Wild Flowers (Everlasting).

Western Australia

(WITH A GROWING POPULATION)

OFFERS:

A great field to capitalists for Industrial Expansion.

The opportunity to manufacture goods at present largely imported from the Eastern States.

Equal facilities to those enjoyed in the other States.

Protection against outside competition.

A plentiful supply of cheap fuel.

Abundance of raw material.

CONCLUSION.

In bringing this brief publication to a conclusion, it is sufficient to say that if the statements set forth, which are compiled from the latest official data, have caused a desire for fuller information upon any points, inquiries either addressed to the Agent General in London or the Head Office in Perth, W.A., will elicit a prompt reply.

Those who decide to take advantage of the great opportunities afforded, as set forth in the previous pages, may rely upon having an unrestricted opportunity of applying their industry to full advantage, as there are no climatic disabilities to prevent every single working day being employed in profitable occupation; no occasion to house stock, and no snowing up or compulsory cessation of work for even one day. With cheap land, prolific harvests, and a good market, the opportunities for the settler are unexcelled.

A map showing the whole State is included in this publication, also two small skeleton maps showing in fine dotted lines the rainfall belts, also the railways and principal towns in the South-West portion of the State.

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